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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,316	11/07/2001	Hiroki Nakamaru	1321-01	7966

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EXAMINER	
LISH, PETER J	
ART UNIT	**PAPER NUMBER**
1754	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,316	NAKAMARU ET AL.	
	Examiner	Art Unit	
	Peter J Lish	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/7/04, 8/25/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, filed 8/25/04, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the newly amended claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,3,and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hassan ("Reduction of halogenated hydrocarbons...").

Hassan teaches a method for the reduction of halogenated hydrocarbons, such as trichloroethylene and tetrachloroethylene, by mixing and reacting them in an aqueous media with an iron catalyst. The iron catalyst that achieves the highest rate of conversion is sulfur enriched extra-pure iron powder (purity > 99.9% before the enrichment process). The extra-pure iron powder is enriched with sulfur by mixing the powder with sodium hydrogen sulfide at different concentrations or by acid washing in hydrochloric acid. In this manner, ferrous sulfide or FeS is formed and subsequently deposited, or precipitated, onto the surface of the extra-pure iron powder.

While the exact concentration of sulfur on the iron surface is not explicitly taught, it would have been obvious to one of ordinary skill at the time of invention to use a concentration of HCl or NaHS that would result in an iron powder having a sulfur content of between 0.1 and 2 % by mass because doing so is seen to be the optimization of a known process, which could have been determined through routine experimentation and is held to be obvious by *In re Boesch*, 205 USPQ 215.

Regarding the amount of manganese on the iron powder, it is expected that the manganese make up less than 0.1 % by mass of the powder because the iron powder that is used is stated to have a purity of greater than 99.9% and manganese is only one of multiple impurities that are normally present on iron powders.

Regarding claim 6, it is not explicitly taught what mass percent of the reaction media is made up of the iron powder, however, it would have been obvious to one of ordinary skill at the time of invention to select an amount of iron powder that would make up between 0.1 to about 10 % by mass of the reaction media, as doing so is seen to be the optimization of a known process, which could have been determined through routine experimentation and is held to be obvious by *In re Boesch*, 205 USPQ 215.

Claims 1, 3, and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolfe et al. (US 6,039,882) in view of Hassan.

Wolfe et al. teaches a method for the remediation of environmental contaminants including halogenated hydrocarbons that are present in soil, sediment, and water. The halogenated hydrocarbons that may be removed are listed in column 8, lines 5-24. The method

of Wolfe requires a reaction between the contaminated media and an iron catalyst. The iron catalyst is preferably made up of a commercial iron powder, optionally an extra-pure iron powder, which additionally contains a source of sulfur. The sulfur is preferably present in the iron catalyst composition in an amount between 0.1 and 25 %.

Hassan teaches a method for the reduction of halogenated hydrocarbons, such as trichloroethylene and tetrachloroethylene, by mixing and reacting them in an aqueous media with an iron catalyst. The iron catalyst that achieves the highest rate of conversion is sulfur enriched extra-pure iron powder (purity > 99.9% before the enrichment process). The extra-pure iron powder is enriched with sulfur by mixing the powder with sodium hydrogen sulfide at different concentrations or by acid washing in hydrochloric acid. In this manner, ferrous sulfide or FeS is formed and subsequently deposited, or precipitated, onto the surface of the extra-pure iron powder.

It would have been obvious to one of ordinary skill at the time of invention to use the sulfur enriched iron catalyst of Hassan in the process of Wolfe et al. because it is seen to meet the requirements of Wolfe and it is additionally seen to achieve the desired effect. While Hassan does not explicitly teach the concentration of sulfur on the iron surface, it would have been obvious to one of ordinary skill at the time of invention to enrich the iron powder so as to have sulfur content between 0.1 and 25 %, as taught by Wolfe et al.

Regarding the amount of manganese on the iron powder of Hassan, it is expected that the manganese make up less than 0.1 % by mass of the powder because the iron powder that is used is stated to have a purity of greater than 99.9% and manganese is only one of multiple impurities that are normally present on iron powders.

Regarding claim 6, it is not explicitly taught what mass percent of the reaction media is made up of the iron powder, however, it would have been obvious to one of ordinary skill at the time of invention to select an amount of iron powder that would make up between 0.1 to about 10 % by mass of the reaction media, as doing so is seen to be the optimization of a known process, which could have been determined through routine experimentation and is held to be obvious by *In re Boesch*, 205 USPQ 215.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 571-272-1354. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PL

STUART L. HENDRICKSON
PRIMARY EXAMINER